

WHEAT VARIETY CHALLENGE 2006-07

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Location: Edisto Research and Education Center, Barnwell Co. SC, Field D-13 C.

Design: RCB with six replicates; plot size 8 rows (8" spacing) x 35'

Soil Type: Dothan loamy sandy.

Rotation: 2006 strip-till corn; 2005 peanut, fallow; 2004 strip-till corn, fallow; 2003 wheat, fallow.

Planting

Date: 20 Nov 2006

Seeding Rate: 24 seed / row ft.

General

Fertility: No preplant fertilizer based on soil test; 30 lbs N applied 21 Dec and 70 lbs N applied 8 Feb.

Herbicide: 0.5 oz Harmony Extra was applied 3 Jan.

Insecticide: Warrior T (3.87 oz /ac) applied 8 Feb.

Methods: Plots were planted with a Hege small plot drill. Seeds from each cultivar were used to calibrate the drill to 24 seed / row ft seeding rate prior to planting.

Nitrogen and Warrior insecticide were applied with a tractor-mounted boom, hydraulic centrifugal pump, and 11003 flat fan nozzles.

Plant height was measured in a representative row length of one replicate, and maturity was evaluated by examining representative plants from one replicate. Cold injury was evaluated by two observers each estimating visual injury (%) from two replicates. Additional cold injury was rated by dissecting in the lab 15 randomly selected culms from 11 varieties which represented a range of maturity. These data are not included in the following table, but a summary of the results is noted below.

Three replicates were treated with Headline (6 oz/ac) and three were left untreated. Fungicide was applied after flag leaf emergence 3 Apr (some varieties were headed) with hollow cone nozzles delivering 9 GPA. Disease symptoms were too low to rate in all varieties. At soft dough, only SS 8308 and USG 3209 had leaf rust symptoms (< 3% flag leaf area).

The inner six rows of each 8-row plot were harvested 30 May with a Kincaid plot combine. Yield samples were weighed on an electronic balance. Test weight was taken by funneling a sub-sample of grain through a Seedburo No. 151 filling hopper and weighing one dry pint of grain on an electronic scale. Grain moisture content for each plot was measured with a Burrows DMC-700 moisture meter. Yields were adjusted to 12% moisture in the following table.

Analysis: ANOVA, using SAS PROC GLM and Fisher's protected LSD ($P=0.05$).

Notes: Weather summary: December temperatures were significantly above average causing concern about vernalization and increased potential for spring cold injury. However, late January and February were colder than normal resulting in typical jointing and heading dates. There was a 25-year April freeze event when it reached 26 F for 2 hours on April 8. May was extremely dry causing flag leaf curling during head fill. No rain occurred between maturity and combining.

Freeze Injury Summary: Varieties which were 100 % headed had approximately 25% stem damage, 21% kernel damage and 15% blank heads. Those 50% headed exhibited 17% stem damage, 5% kernel damage, and 3% blank heads. Less mature varieties had no stem damage, < 1% kernel injury, and no blank heads. Stem injury consisted of typical roughened area at the internode with highest water content, but not complete collapse of the stem.

Some plots were ruined by hogs after harvest maturity. Yield of the following varieties were determined from less than six replicates: DO2-8486 (Coker 9700) and V 9710 (2 reps), SS 520 (3), AGS 2031 (4), Coker 9553, AGS 2060, SS 8641, McIntosh (5).

Table 1. Wheat variety performance, Blackville, SC 2006-2007.

| Variety | Aw n | GS ¹ April 8 | % Visual Freeze injury ² | Joint Date | Head Date | Harvest Maturity Date | Plant Height (cm) | ³ Mean Yield Bu/ac ^(reps) | Fung. Treat Yield Bu/ac ^(reps) | Untrt. Yield Bu/ac ^(reps) | Mean Test Wt. Lb/bu | Fung. Treated Test Wt. Lb/bu | Untrt. Test Wt. Lb/bu |
|----------------------------|------|----------------------------|--|---------------|--------------|-----------------------------|-------------------------|---|--|--|------------------------------|---------------------------------------|-----------------------------|
| AGS 2000 | Y | BL | 19 | 4 Mar | 6 Apr | 23 May | 93 | 90.1 ⁽⁶⁾ | 90.6 ⁽³⁾ | 89.7 ⁽³⁾ | 61.9 | 61.8 | 62.0 |
| SS 520 | N | 50HD | 9 | 10 Mar | 8 Apr | 23 May | 89 | 81.6 ⁽³⁾ | 83.1 ⁽²⁾ | 78.4 ⁽¹⁾ | 59.7 | 59.5 | 59.8 |
| AGS 2031 | N | SB | 2 | 10 Mar | 11 Apr | 25 May | 77 | 80.3 ⁽⁴⁾ | 75.9 ⁽²⁾ | 84.7 ⁽²⁾ | 62.2 | 62.2 | 62.3 |
| DO2-8486 (Coker 9700) | N | BL | 30 | 6 Mar | 4 Apr | 23 May | 85 | 78.3 ⁽²⁾ | 78.1 ⁽¹⁾ | 78.6 ⁽¹⁾ | 62.0 | 62.0 | 62.0 |
| Magnolia | Y | 50SB | 3 | 10 Mar | 12 Apr | 25 May | 93 | 77.9 ⁽⁶⁾ | 75.2 ⁽³⁾ | 80.6 ⁽³⁾ | 61.6 | 61.5 | 61.6 |
| AgriPro Panola | Y | 20SB | 4 | 13 Mar | 14 Apr | 25 May | 83 | 77.8 ⁽⁶⁾ | 75.6 ⁽³⁾ | 79.9 ⁽³⁾ | 61.2 | 61.4 | 61.1 |
| SS 8308 | Y | 10SB | 4 | 20 Mar | 16 Apr | 26 May | 87 | 77.0 ⁽⁶⁾ | 74.7 ⁽³⁾ | 79.4 ⁽³⁾ | 62.7 | 62.7 | 62.8 |
| Pioneer 26R61 | Y | 80SB | 4 | 9 Mar | 10 Apr | 26 May | 90 | 76.7 ⁽⁶⁾ | 74.3 ⁽³⁾ | 79.1 ⁽³⁾ | 62.0 | 62.0 | 62.0 |
| USG 3209 | N | 50HD | 12 | 10 Mar | 8 Apr | 23 May | 78 | 76.4 ⁽⁶⁾ | 77.2 ⁽³⁾ | 75.6 ⁽³⁾ | 61.6 | 61.7 | 61.5 |
| AGS 2000 (Dec 6 plant.) | Y | E. Boot | 0 | 20 Mar | 24 Apr | 25 May | 91 | 75.7 ⁽⁶⁾ | 77.3 ⁽³⁾ | 74.2 ⁽³⁾ | 62.2 | 62.4 | 61.9 |
| Coker 9553 | Y | 30HD | 7 | 13 Mar | 11 Apr | 25 May | 85 | 74.9 ⁽⁵⁾ | 73.9 ⁽³⁾ | 76.5 ⁽²⁾ | 62.2 | 62.4 | 62.1 |
| AGS 2010 | N | 100HD | 13 | 7 Mar | 8 Apr | 24 May | 87 | 74.5 ⁽⁶⁾ | 69.6 ⁽³⁾ | 79.4 ⁽³⁾ | 62.6 | 62.7 | 62.4 |
| AGS 2060 | Y | BL | 19 | 8 Mar | 4 Apr | 23 May | 108 | 73.1 ⁽⁵⁾ | 71.6 ⁽²⁾ | 74.1 ⁽³⁾ | 63.8 | 63.6 | 63.8 |
| SS 8641 | N | 25SB | 3 | 1 Mar | 14 Apr | 25 May | 90 | 72.6 ⁽⁵⁾ | 72.4 ⁽³⁾ | 72.8 ⁽²⁾ | 62.0 | 62.4 | 61.7 |
| Vigoro Dominion | N | 25SB | 1 | 14 Mar | 14 Apr | 25 May | 68 | 72.5 ⁽⁶⁾ | 74.6 ⁽³⁾ | 70.3 ⁽³⁾ | 62.2 | 62.3 | 62.0 |
| Vigoro McIntosh | N | 50SB | 7 | 10 Mar | 13 Apr | 25 May | 90 | 72.1 ⁽⁵⁾ | 72.1 ⁽³⁾ | 72.1 ⁽²⁾ | 62.8 | 62.9 | 62.7 |
| USG 3952 | N | 20SB | 3 | 15 Mar | 15 Apr | 26 May | 88 | 71.0 ⁽⁶⁾ | 72.1 ⁽³⁾ | 69.9 ⁽³⁾ | 62.5 | 62.5 | 62.6 |
| Pioneer 26R87 | Y | 10SB | 5 | 11 Mar | 15 Apr | 25 May | 84 | 67.9 ⁽⁶⁾ | 69.8 ⁽³⁾ | 66.0 ⁽³⁾ | 63.4 | 63.6 | 63.2 |
| Pioneer 26R12 | Y | Boot | 1 | 18 Mar | 22 Apr | 29 May | 84 | 67.4 ⁽⁶⁾ | 66.6 ⁽³⁾ | 68.3 ⁽³⁾ | 62.3 | 62.0 | 62.7 |
| V9710 | N | Boot | 0 | 10 Mar | 22 Apr | 26 May | 76 | 64.8 ⁽²⁾ | -- ⁽⁰⁾ | 64.8 ⁽²⁾ | 60.7 | 60.8 | 60.6 |
| Mean | | -- | 7.3 | -- | -- | -- | 86.3 | 75.1 | 75.0 | 75.7 | 62.1 | 62.1 | 62.0 |
| LSD (P<0.05) | | -- | -- | -- | -- | -- | -- | 6.6 | 8.7 | 9.9 | 0.5 | 0.7 | 0.7 |

Planted 20 Nov 2006; Harvested May 29, 2007.

3 replicates were treated with Headline (6.0 oz / acre) after flag leaf emergence 3 Apr .

1. Growth stage when freeze occurred: Whole number code = %, SB = split boot, HD = headed, BL = bloom.

2. Freeze summary (based on dissected subsample data not shown): Varieties which were 100% headed had approximately 25% stem damage, 20 % kernel injury, and 15% blank heads. Those 50% headed had < 20% damaged stems, approximately 5% damaged kernels and 3% blank heads. Varieties less mature had no obvious stem injury and < 1% damaged kernels.

3. Some plots were ruined by hogs after harvest maturity. Yield of the following varieties were determined from less than six replicates: DO2-8486 and V 9710 (2 reps), SS 520 (3), AGS 2031 (4), Coker 9553, AGS 2060, SS 8641, McIntosh (5).